

REMARKS

Claims 1 - 4 are pending in the application.

Claims 1 - 4 are rejected.

Claims 1 - 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Sawa et al.

(Sawa) US PAT 6,351,397.

The Applicants traverse the rejections and request reconsideration.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1 - 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Sawa et al. . (Sawa) US PAT 6,351,397.

The Applicants note that Sawa is a U.S. patent owned by the common assignee Yaskawa with some of the inventors common to the present Application. On further review of the foreign priority document JP 10-310843 of Sawa, the Applicants' note that it is the same as JP-A-2000-139076 which is referred to as Patent Document 2 in the background section of the present Application.

In discussing Sawa, in the background section, it is noted that the instantaneous value of the input voltage is employed for the input voltage detection method. Therefore, when a resonance or a short circuit problem occurs in the input voltage, an error is caused in the calculation. The present invention provides a detection method that overcomes the above problem and facilitates a stable operation of the PWM cycloconverter (see [0008]-[0009] of Sawa). In other words, the present invention is an improvement over Sawa and is aimed at solving a known error in the conventional art as disclosed in Sawa.

Importantly, the present invention (as recited in apparatus claim 3), requires an input voltage phase detector for detecting a phase of the three-phase AC power. The Examiner reads

the phase detector on item 30 of Sawa. However, item 30 of Sawa is an input voltage information detection section. There is no disclosure in Sawa that the input voltage information detection section 30 detects phase. In fact, Fig. 2 of Sawa provides further details of the circuit used in item 30. Clearly, this circuit cannot be used to detect a phase of the AC power as required by the present invention. Therefore, item 30 cannot be considered to an input voltage phase detector. It is at best a voltage magnitude detector.

Likewise, the Examiner incorrectly reads the artificial bus voltage detector on item 22 of Sawa. Item 22 of Sawa is a power supply voltage section that receives the power voltage and outputs the phase and the instantaneous value of the power voltage. It is not clear as to what the Examiner reads the artificial DC bus voltage on. Even if item 50 is considered to be the equivalent of the artificial bus voltage detector, it is believed to be incorrect because item 50 of Sawa provides gate signals based on the input voltage information. 6:21-29 of Sawa provides examples of the gate signals. For example, if G_{2xy} is 1, the switch S_{xy} is turned on. Likewise, when G_{2yx} is 1, the switch S_{yx} is turned on, etc. In other words, items 22 and 50 of Sawa cannot be considered to provide the functionality of detecting an artificial DC bus voltage that represents the magnitude of three-phase AC power as a difference between a maximum value and a minimum value.

Likewise, for similar reasons item 24 cannot be considered to be equivalent to an ideal voltage selector.

In fact, the methodology used in the present invention is completely different from Sawa that the components of the circuit shown in Fig. 1 of Sawa cannot, by any stretch of imagination, be considered to be equivalents of the present invention.

As noted in [0097], in conventional technologies, input voltage values and phases are calculated directly based on power voltage. Therefore, as distortion as shown in Fig. 9 occurs in the waveform of an artificial DC bus voltage. On the other hand, in the present invention, the voltage value comparator compares the artificial DC bus voltage with the upper limit value and the lower limit value which define a specific width relative to the ideal input voltage value that is obtained. The artificial DC bus voltage is limited to the input voltage ideal value. Such a technique avoids the instantaneous distortions.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP 2131 *citing Verdegaa Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The Examiner has not established anticipation of claim 3 based on Sawa at least because of the differences noted above.

Claim 1 is a method claim that includes limitations analogous to claim 3. Therefore, it is allowable at least for analogous reasons.

Claims 2 and 4 are dependent on claims 1 and 3 and are allowable at least for similar reasons.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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